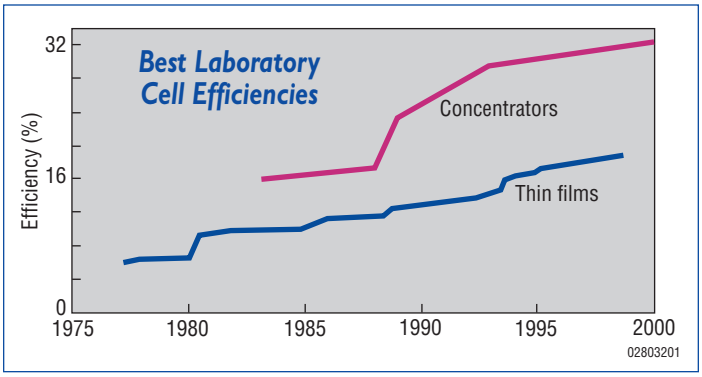
Photovoltaics: New Energy for the New Millennium

Photovoltaics (PV) is *solar electricity*—it uses semiconductor materials to convert sunlight directly into electricity. It is good for our energy, our economy, our environment, and our future.

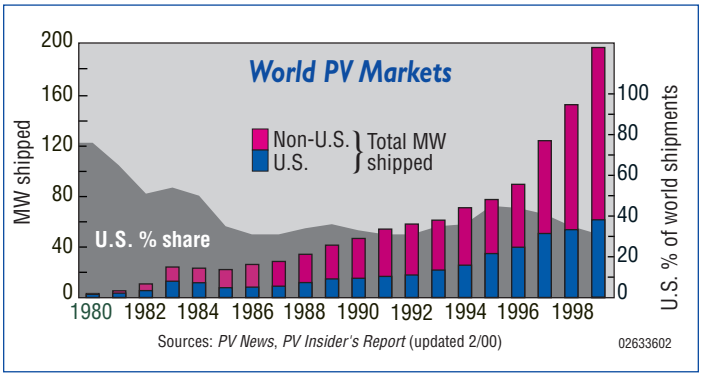
PV is a versatile means to produce electricity for a wide variety of applications—from small (milliwatts) to very large (hundreds of megawatts). It does so by using the inexhaustible energy of the sun, thus protecting us from international energy politics and volatile fossil fuel markets. In addition, this technology produces no greenhouse gases, and so, will not exacerbate possible global warming and climate change. And a growing PV industry will create many new high-technology jobs, especially in research, manufacturing, and energy services.

The United States leads the world in technological advances related to innovative research and development. Progress is being made in areas such as sunlight-to-electricity conversion efficiency, new PV materials and processes, and manufacturing R&D.



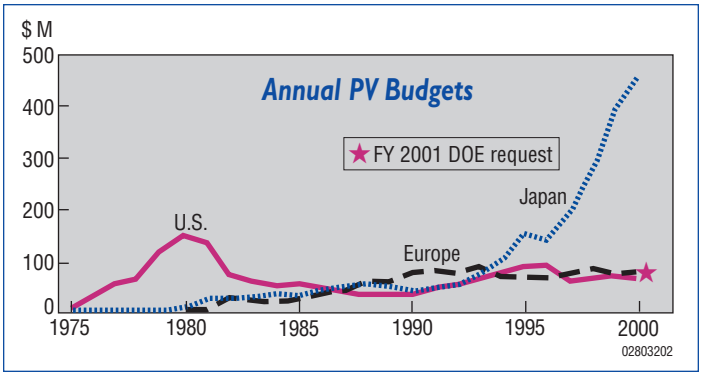
U.S. research has led to the upward trend in sunlight-to-electricity conversion efficiencies for most PV technologies.

Photovoltaic markets have grown rapidly, more than 20 percent per year over the past decade. In 1999, PV markets represented a $1.5 billion industry. However, the lead we once held in the worldwide PV market has eroded during the last several years. Competitors, particularly Japan and Europe, have eclipsed our PV industry's once stellar market-share position.



U.S. market share faces serious international challenges.

Other nations have recognized the importance of this technology and have accelerated their own strategic investments toward securing dominant global positions. In contrast, U.S. funding for PV has been declining.



The United States is not keeping up with the PV budgets of Japan and Europe.

The U.S. Department of Energy's (DOE's) proposed $82 million budget for photovoltaics in Fiscal Year 2001, therefore, represents a reversal in the funding trend and has significant potential to affect the future of the U.S. PV industry. This new funding would help our nation extend its technological lead and would give us the ability to compete for the dominant position in the PV market.

The DOE PV Program's goal is to ensure U.S. leadership in PV R&D, foster the success of promising technologies, and accelerate PV as a global energy option. To do so, DOE allocates government money for activities carried out through in-house projects in national laboratories and through cost-shared projects with industry and universities.

Most of DOE's PV funding is managed by the National Renewable Energy Laboratory's National Center for Photovoltaics (NCPV), whose primary focus is R&D. The NCPV has an established track record of excellence for in-house scientific research and engineering, as well as for work with competitively selected partners in industry and at universities.

The success of photovoltaics—and of the DOE/NCPV program—will be measured by a growing and profitable U.S. PV industry. PV will provide us with clean and abundant energy, national energy security, hundreds of thousands of jobs, and a safer and more equitable world.

Photovoltaics is a semiconductor technology with the potential to become one of the world's most important industries. The scientific and technical challenges addressed by the DOE PV Program—the NCPV and its industry and university partners—are key to reaching this potential.

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